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Cell Proliferation, vol. 7. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y.
10. **Fischinger, P. J., S. Nomura, and C. S. Blevins.** 1975. Two levels of restriction by mouse or cat cells of murine sarcoma virus coated by endogenous xenotropic oncornavirus. J. Gen. Virol. **29**:51–62.
11. **Fischinger, P. J., S. Nomura, and D. P. Bolognesi.** 1975. A novel murine oncornavirus with dual eco- and xenotropic properties. Proc. Natl. Acad. Sci. U.S.A. **72**: 5150–5155.
12. **Fischinger, P. J., and T. E. O'Connor.** 1969. Viral infection across species barriers: reversible alteration of murine sarcoma virus for growth in cat cells. Science **165**:714–716.
13. **Fischinger, P. J., P. T. Peebles, S. Nomura, and D. K. Haapala.** 1973. Isolation of RD-114-like oncornavirus from cat cell lines. J. Virol. **11**:978–985.
14. **Frankel, A. E., J. H. Gilbert, K. J. Porzig, E. M. Scolnick, and S. A. Aaronson.** 1979. Nature and distribution of feline sarcoma virus nucleotide sequences. J. Virol. **30**:821–827.
15. **Hartley, J. W., and W. P. Rowe.** 1976. Naturally occurring murine leukemia viruses in wild mice: characterization of a new "amphotropic" class. J. Virol. **19**:19–24.
16. **Hartley, J. W., N. K. Wolford, L. J. Old, and W. P. Rowe.** 1977. A new class of murine leukemia virus associated with development of spontaneous lymphoma. Proc. Natl. Acad. Sci. U.S.A. **74**:789–792.
17. **Ihle, J. N., P. J. Fischinger, D. P. Bolognesi, J. Elder, and J. W. Gautsch.** 1978. B-Mux: a unique murine C-type virus containing the *env* gene of xenotropic viruses and the *gag* gene of the ecotropic virus. Virology **90**: 255–265.
18. **Ishimoto, A., J. W. Hartley, and W. P. Rowe.** 1977. Detection and quantitation of phenotypically mixed viruses: mixing of ecotropic and xenotropic murine leukemia viruses. Virology **81**:263–269.
19. **Levy, J. A.** 1978. Xenotropic type-C viruses. Curr. Top. Microbiol. Immunol. **79**:111–260.
20. **McAllister, R. M., M. Nicolson, M. B. Gardner, R. W. Rongey, S. Rasheed, P. S. Sarma, R. J. Huebner, M. Hatanaka, S. Oroszlan, R. V. Gilden, A. Kabigting, and L. Vernon.** 1972. C-type virus release from cultured human rhabdomyosarcoma cells. Nature (London) **235**:3–6.
21. **Pincus, T.** 1980. The endogenous murine type C viruses, p. 77–130. *In* J. R. Stephenson (ed.), Molecular biology of RNA tumor viruses. Academic Press, Inc., New York.
22. **Rickard, C. G., J. E. Post, F. de Noronha, and L. M. Barr.** 1969. A transmissible virus-induced lymphocytic leukemia in the cat. J. Natl. Cancer Inst. **42**:987–1014.
23. **Robey, W. G., M. K. Oscarsson, G. Vande Woude, B. Naso, R. B. Arlinghaus, D. K. Haapala, and P. J. Fischinger.** 1977. Cells transformed by certain strains of Moloney sarcoma virus contain murine p60. Cell **10**: 79–89.
24. **Rommelaerre, J., D. V. Faller, and N. Hopkins.** 1978. Characterization and mapping of RNAse T1 resistant oligonucleotides derived from the genome of AKV and MCF murine leukemia viruses. Proc. Natl. Acad. Sci. U.S.A. **75**:495–499.
25. **Sarma, P. S., and T. Log.** 1973. Subgroup classification of feline leukemia and sarcoma viruses by viral interference and neutralization tests. Virology **54**:160–170.

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